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ABSTRACT

Presented as a professional development workshop to secondary teachers, this document examines various techniques and strategies for appropriate library use. Recognizing the teacher's need for practical information, the presentation is designed to: explain the role of the library in the educational process; provide information on how to locate resource materials; explain hands-on research strategies using worksheets, treasure hunts, workbooks, etc.; and provide practical information on how to integrate library and resource material usage into class projects by means of mock trials, historical reenactments, science fairs, panel discussions, and other activities. The use of artistic talent in class assignments as well as research strategies and research paper ideas for the humanities, social sciences, and sciences are also discussed. Several bibliographies are included: Sources of Ideas; The Vertical File; Library Instruction Guides; and Selected Library Reference Sources and Resource Guides. A supplement--Who to Contact for Information and How--provides addresses and ideas on sources of free or inexpensive resource materials. (Author/THC)

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HELP FOR THE "TRULY NEEDY": THE UTILIZATION OF LIMITED RESOURCES BY SECONDARY TEACHERS

By

Ronnie W. Faulkner
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Glenville State College

A Professional Development Workshop for Teachers
Presented at
Greenbrier West High School
Charmco, West Virginia
August 29, 1985

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INTRODUCTION

The last thing a group of classroom teachers need is a three hour presentation on college library resources that they do not have ready access to and cannot afford. The presentation that follows was designed with the teacher's need for practical information in mind. It is designed to do essentially four things:

1) To explain the role of the library in the educational process
2) To provide information on how to locate resource materials
3) To explain "hands-on" research strategies using worksheets, "treasure hunts," workbooks, etc.
4) To provide practical information on how to integrate library and resource material usage into class projects by means of mock trials, historical reenactments, science fairs, panel discussions, etc.

It is believed that each teacher or librarian that is a participant in this professional development presentation will recieve significant insight into how to integrate library and resource utilization into class work of many types. The bibliogrpahies appended are designed to lead the teacher to further resources that provide ideas and information that would have practical classroom or library applications.

Ronnie W. Faulkner
Library Director
Glenville State College

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OUTLINE

HELP FOR THE "TRULY NEEDY": THE UTILIZATION OF LIMITED RESOURCES BY SECONDARY TEACHERS

I. The Role of the Librarian and Libraries in the Educational Process:
"Where's the one with the bun?" or "You don't look like a librarian."

II. General Library Orientation: "Where's the restroom?"

A) The Floor Plan
B) The Card Catalog
C) Readers' Guide
D) Basic Reference Sources

III. Library Instruction: "Miss Librarian, how do you know everything?"

A) The "Hands On" Approach to Instruction

1) Worksheets and "Treasure Hunts"

a) Hints in Design
b) General Worksheets
c) Subject Specific

2) Handbooks and Workbooks

a) Commercially Produced
b) General
c) Subject Specific

B) Developing a Research Strategy

1) How to Select a Topic
2) How to Find Information
3) How to Organize Information
4) How to Prepare a Report

IV. Ideas: Sources of Inexpensive or Free Resources
"I'm a man of means by no means...."

A) The World Almanac?

1) Associations and Societies
2) Government Departments
3) Foreign Embassies
4) Major Companies

B) Government Resources

1) Consumer Information Service
2) Superintendent of Documents

3) Educational Resources Info. Center (ERIC)

C) Discount Booksellers

1) Barnes & Noble
2) Publishers' Central Bureau

D) Local and Regional Library Resources

1) Public Libraries
2) College & University Libraries
3) Interlibrary Loan

E) Free Materials

1) Standard Guides
2) The Vertical File

F) Reading Material

1) The Book Exchange
2) The Book Swap
3) The Teacher's Library

G) "Let Your Fingers Do The Walking...."

1) The Telephone Directory
2) Local Resource People

a) Professionals
b) Businessmen
c) Local Officials

V. Hints for the Librarian: "Johnny won't read...."

A) Pretesting and Post-testing
B) Displays - Bulletin Boards and Display Cases
C) Book Talks by the Librarian to Classes
D) Contests - Question of the Week?
E) The Mystery
F) Pathfinders
G) Use of Popular Culture to Prompt Library Use
H) Popular Book Section
I) Joint Planning With Teachers

VI. Practical Applications of Resource Materials:
"What good is the Pythagorean Theorem?"

A) The Humanities

1) Research Paper Ideas
2) Performances
3) The Literary Magazine
4) The Story Paper

5) The Novel Illustrated
6) The Comic Book Edition
7) Science Fiction and Popular Romance
8) The Panel Discussion
9) The Great Debate

B) The Social Sciences

1) Research Paper Ideas: What If?
2) Mock Trials
3) In the Newspaper
4) Historical Reenactments
5) Simulation Games and Role Playing
6) Draw It!
7) The Family Experience
8) The Panel Discussion
9) The Great Debate

C) The Sciences

1) Research Paper Ideas: The Human Factor
2) The Great Scientists
3) The Science Fair and Magic Show
4) Science Illustrated
5) The Science in Science Fiction
6) The Computer
7) Brain Teasers In Math and Logic
8) The Panel Discussion
9) The Great Debate

VII. Conclusions:

Joe at school: "Jim sure is dumb. He did all the work on that group assignment. I just sat back and breezed through."

Joe, working at gas station 35 years later: "I use to know Jim before he was head of IBM. He always was a smart guy."

A) Need for General Library Orientation
B) Need for Practical Utilization of Skills
C) Entertainment vs. Education
D) The Smart Teacher
E) The Tragedy of the "Subliterate"

VIII. Discussion

IX. The Survey

HELP FOR THE "TRULY NEEDY": THE UTILIZATION OF LIMITED RESOURCES BY SECONDARY TEACHERS

By

Ronnie W. Faulkner

A female high school student, upon graduating from a rural high school, proclaimed with much relief: "I never intend to read another book," while a male graduate of the same public school proudly announced: "In twelve years of schooling I've read only one book!" It turned out that the book in question was that masterpiece of literature The Official Polish-Italian Joke Book (1980), which contained that well known joke about the Polish National Library closing its doors because someone checked out "the book." Certainly the student, in reading the above joke, failed to appreciate the irony of the situation. Such persons, once they depart the public schools, are not likely to become life-long readers or life-long learners.

By the time an American youngster reaches high school age he has engaged in only one activity more often than watching television---sleeping. In addition to the infamous "boob tube," there exists the ever present diversion of popular movies. There was a time when motion pictures were based upon books; now books are based upon motion pictures. A secondary teacher might justifiably ask: How is one to

promote library usage and reading in a society saturated with visual entertainment? Likewise, the secondary teacher is often equally perplexed by the scarcity of adequate resource materials.

I am here with the "good news." There is hope for the seemingly hopeless and help for the needy. Mark Twain once wrote: "Faith is believing what you know ain't so."[1] Yet, if it were not for faith, I suspect that all public school teachers would throw in the towel and admit defeat. Such, however, is not the way of the teacher. So long as there is a possibility that enlightenment might permeate into the deeper recesses of the befuddled adolescent mind, the secondary teacher will remain true to the faith. Every teacher knows that the comment "We just don't have the materials" is an explanation and not an excuse. It is worth remembering that the world's greatest library started with a single book. Many teachers have accomplished miracles with a few worn volumes and some native ingenuity. Hope springs eternal in the teacher's breast.

The Role of the Library in the Educational Process

Every secondary teacher should recognize the important educational role of the library. The primary aspects of this role are:

1) Support for the school curriculum
2) Meeting students informational needs
3) Supplying materials to meet student interests

Of these three the support of the curriculum is by far the most important. Indeed, many schools are hard pressed to even have resources to meet that fundamental role. However, the effectiveness of the library in fulfilling that role is intimately connected with a good teacher-librarian partnership. It is as Wendy H. Robbins, a librarian at St. Joseph's Preparatory School in Philadelphia, wrote: "The importance of the teacher-librarian relationship cannot be understated if there is to be a workable library program in a school. The librarian is truly at the 'mercy' of the teacher. It is never the other way around."[2] This is why it is important that teachers understand what purposes a library serves.

Library skills are vital for a number of reasons. They serve to:

1) Prepare a student for college
2) Prepare a student for critical thought
3) Prepare a student for the use of public libraries (for example, West Virginia has state-wide borrower cards)
4) Prepare a student for life-long learning
5) Prepare a student for life in an information society

It is up to the librarian to convince the teacher of the importance of the library. It is up to the teacher to appreciate and act upon the perceived importance of the library. Library instruction is too vital to be left to the

English classes alone. It must be conducted in social science and science classes as well as in humanities disciplines. Of course, the first step in an effective library program will be a general orientation.

General Library Orientation

The general orientation is most often designed for incoming freshmen. It should be conducted in conjunction with introductory level English classes. The primary purpose of such a program should be to familiarize students with the basics about circulation policies, the catalog, the location of materials, reference assistance,and the use of a basic resource like Readers' Guide. Such an orientation will help alleviate the anxiety the accompanies first time library use. Librarians are familiar with the patron fear of appearing ignorant. Users often preface questions with the comment "I know this is a stupid question, but...."

It is also unfortunately true that many teachers think librarians are "too busy" to give library orientation. However, the librarian's role is not that of a filing clerk or book checker. The librarian is an educator and should never be too busy to educate. It is quite often a mistake for the classroom teacher to give the orientation without consultation with the librarian, for it is the librarian who should be abreast of new resources and changes in the library.

The librarian should acquire the support of both the principal and the teachers to a required orientation

program. The librarian should then meet with the English faculty to organize and plan the program. This orientation may take one to three class periods and should involve at least two components: A general orientation to the library and a worksheet prepared jointly by the librarian and the English instructors. Such an orientation should never be viewed as the ultimate in library instruction. Library instruction should always be an on-going curriculum related endeavor performed in conjunction with classes in every discipline.

The components of a general orientation program should include:

1) A floor plan
2) Relevant handouts
3) An explanation of policies & procedures
4) The Dewey Decimal Classification Scheme
5) The use of the catalog
6) The use of Readers' Guide
7) The use of a few basic information sources

The obvious is often overlooked. It should be remembered that even a small library will seem like a maze to the average public school student. Distributing numbered floor plans and asking students to identify what is located in various areas is a valuable exercise. It reveals something about the cognitive abilities of students--the ability to translate a two-dimensional diagram into a mental representation of objects and locations in the physical

universe. It is wise for the teacher to pass out the plans and then watch the students go through the location procedure. A student lost in an attempt to locate the reference area will also not be able to locate the United States on a world map or identify internal organs on a diagram of the inner structures of the body. Such a student may well need remedial help.

Once basic library policies and procedures are explained, the students should be made familiar with the card catalog and the Dewey Classification System. In the past if students used the library at all they probably located information by browsing. Browsing is not an effective means of library usage. In fact, the larger a library becomes the more inefficient browsing becomes as a means of locating information. This fact should be explained before the presentation on the card catalog. The presenter should avoid library jargon as much as possible. Such terms as "main entry," "stacks," and "tracings" mean nothing to a high school student. Concrete analogies should be used in explanations: "The call number is the address of the book on the shelf. If you have the street address for a house you can more easily locate the residence. If you have the call number of a book you should be able to locate it." One should carefully explain how to search the catalog by author, title, and subject. It should be noted that fiction does not have subject headings.

Readers' Guide is the most essential of periodical indexes. It has been published by the H. W. Wilson company since 1901 and now covers over 160 periodicals. The abridged version containing some 44 periodicals is the edition most often found in public schools. The author-subject indexing and abbreviations in the Abridged Readers' Guide should be fully explained by means of a handout and overhead projection.

Any secondary school library should have some almanacs, dictionaries, and encyclopedias. World Book, the most popular encyclopedia, is much maligned in academia because it is so often the only source high school graduates seem to know anything about. But the simple fact is that World Book is the only encyclopedia many public schools can afford. Also, it is by far the best purchase. Kenneth Kister, in The Encyclopedia Buying Guide, concluded that "World Book is, page-for-page, the best encyclopedia on the market today."[3]

A valuable unabridged dictionary that can be purchased at a tremendous discount is Webster's New Universal Unabridged Dictionary, available by mail order from Barnes & Noble Bookstore in New York. A worthy abridged dictionary would be any of the editions of the Webster's New World Dictionary. The World Book Dictionary is just a step below the unabridged dictionaries which typically contain about 350,000 words. It is a valuable tool for it has explanatory chapters on library research, book reports, and other useful

information. In a preliminary orientation students should be made aware of the fact that dictionaries often contain supplements listing given names and their meanings, colleges and universities, and various essays on language. In other words, dictionaries do more than define words.

The World Almanac and Book of Facts, published since 1868, is one of the most essential library tools. According to Eugene P. Sheehy it is "the most comprehensive and most frequently useful of American almanacs of miscellaneous information."[4] The World Almanac can answer such questions as:

On what day of the week was June 2, 1840? (Tuesday)

What earthquake resulted in the most deaths?
(Shaanxi, China in 1556, 830,000)

What symbol appears on the flag of Barbados?
(The trident)

What island is at 35° North Latitude and 25° East Longitude? (Crete)

What is the address for the Boy Scouts of America?
(1325 Walnut Hill Ave., Irving, TX 75062)

Knowledge of the utilization of the almanac is one of the most essential of library skills.

The above noted basic orientation should be followed by a practical library exercise. If there is no practical experience following the basic orientation students will assume that the presentation was of no importance. It is better to give credit for the successful completion of such

an exercise rather than to penalize a student for failure. The student should have an opportunity to redo those portions of the exercise that are incorrect. By this means the usual anxieties can be avoided and the library orientation can become a learning experience.

Library Instruction: From Worksheet to Workbook

As previously mentioned practical experience is very important in any phase of library instruction. To the typical secondary student it often seems that the librarian knows everything. The student perceives such knowledge as mysterious rather than as evidence of acquired skills. I recall once seeing a student's finger pause on the spine of an "S" encyclopedia. I approached the student and enquired: "You are looking for Sheherazade?" The girl looked at me with astonishment and asked: "How do you know?" I smiled and replied: "I'm psychic." Of course, the fact is that a certain music instructor always assigned his students to look up that subject. It was that time of the year again. The librarian and the teacher should not be "guardians of the secret." They should strive to teach their skills to students at every opportunity.

One of the best means of imparting library skills to students is through the use of worksheets or "treasure hunts." General worksheets are probably most appropriate following the initial library orientation. They should be short (no more than two pages) and should cover only the basics. The librarian and teacher should work together on a

series of questions that would be applicable over a number of years. The sheets should be sufficiently different so that students could not copy each others answers. This could be done as follows:

1) The Card Catalog - Students should be asked to look up a book but on each sheet a different book should appear in the title space. The remaining questions would all be identical.
2) Readers' Guide - Students should be asked to look up a specific subject in a specific volume of Readers' Guide. The subject and volume should be different on each sheet, but all subsequent questions should be identical.
3) Encyclopedia - Each student should be looking up a different subject in a specified set of encyclopedias, but the questions about the article should be the same for all.
4) Dictionaries - Each student should locate a different word and answer the same questions.
5) The Almanac - Each student should answer a different question using this source.

One might well ask: "How am I to manage the relevant information for one-hundred individual students?" If there are twenty different questions for each student that will involve two-thousand answers. There is a simple and effective way to deal with this mass of information. Each worksheet should be numbered consecutively from one to

one-hundred. One-hundred blank pages should then be placed in a ringed binder. All relevant citations for the questions on the sheet should be photo reproduced and pasted to the page with the corresponding number. One might use the back of the sheet if necessary. The librarian should keep this binder and check each students work, permitting correction of errors by the student, before the assignment is turned over to the instructor for the requisite class credit. Because this is a general worksheet the primary responsibility for the work should be the librarians.

Another type of project that is more often the work of the teacher and is much more subject specific is the "treasure hunt." The "treasure hunt" is a worksheet consisting of amusing and interesting questions related to the student's curriculum. The student is expected to locate the relevant answers and give the bibliographic citation on the sheet. More than one source might answer the question. Library usage and the relevant sources should be discussed and examined before the assignment is given. A frequent student complaint is: "I was given this 'treasure hunt,' but the teacher did not review the sources. Where do I begin?" This type of project should be updated frequently and the teacher should confirm that every answer is indeed in some source in the school library. A teacher who moved from school X to school Y will sometimes give the same library assignment only to discover that school Y has only half the necessary resources. Such sheets must be adapted

to the local situation. A teacher in a government class may want to have a "treasure hunt" about county and state offices and leaders; a science teacher may wish to evolve a sheet asking questions about scientific anomalies or famous scientists; and an English teacher may create assignments on mythology or science fiction. You may want to follow the basic procedures outlined above to vary the individual questions or answers.

A step above the worksheet or "treasure hunt" is the handbook and workbook. A handbook usually is primarily explanatory in nature, though it may have some library questions appended. On the other hand, a workbook consists almost exclusively of a series of exercises. Quite often these items may be commercially produced. A number can be found by consulting the subject "Libraries--Handbooks, Manuals, etc." in Books in Print. Standardized books have advantages, but they are seldom suitable for a school library. The vast majority of the items explained and questions asked will not be relevant to a specific public school situation. Their primary usefulness is in providing ideas for internal workbook development. This development should be the joint task of librarian and faculty.

A locally developed general handbook should contain the following:

1) A description of the library

2) A floor plan

3) Policies and procedures (check-outs, fines, etc.)

4) Services available and hours

5) The use of the card catalog

6) The Dewey Classification System

7) List of basic resources: vertical file, indexes, reference works

A locally developed general workbook should contain the following sections with relevant questions:

1) The use of the card catalog

2) The use of Readers' Guide and periodicals

3) The use of the vertical file

4) The location of media items

5) The use of reference sources: Almanacs, dictionaries, encyclopedias, etc.

The pages with the questions may vary from workbook to workbook with descriptive pages being identical. The handbooks or workbooks may be mimeographed, photocopied, or reproduced by whatever means is most appropriate and least expensive.

In addition to the above listed categories, subject specific workbooks might have sections of a specialized nature dealing with subject-related sources such as the General Science Index, the Dictionary of American History, or Something About the Author. Also, a series of relevant discipline intensive questions requiring use of general sources might be generated. The performance of workbook assignments will give a good basis for the development of research skills.

Developing a Research Strategy

There is more involved in developing and executing an effective research strategy than just teaching the use of basic library resources. The development of such skills as are needed to do effective research must be course-related or the student will not recognize the relevance of the skills. Elementary library instruction does not generally go beyond basic skills.

When the teacher assigns a project and simply states: "Go to the library and take notes," he has not truly helped his students do research. Before the assignment several class periods should be devoted to proper library research strategies. A history teacher or science teacher should never presume that the students learned it all in English class. Even if such were the case, and it seldom is, the reinforcement provided in any given class would be worthwhile. Also, the instructor in a history or science class should be more knowledgeable about specific materials in his or her discipline than an English teacher. However, it is always valuable for the teacher to consult with the librarian to be informed of any recent media arrivals or changes of procedure that may be useful for students to know.

The teacher should commence with a general overview on how to use the library. The librarian may be invited to the class to give this initial presentation or the students may be taken to the library itself. After this one-period

presentation the class should be made cognizant of the relevant resources for the subject discipline in question. By the third class period the instructor should be ready to start explaining the development of research strategy.

Though written for the sciences, Barry A. Van Deman and Ed McDonald's book Nuts and Bolts gives a simple and straight-forward approach that would be useful in any subject area.[5] The first step in research is to survey general literature in order to help formulate a topic. I feel it is better to let students select their own topics whenever possible. Self-motivated students resent being told they must do research on certain subjects. Sometimes, however, it will be necessary to set parameters. The teacher should always specify that topics must have his or her approval. The first instincts of students will be to select topics or projects that are too broad. The science fair student will say he intends to "do something on motors" or the history student will say he intends to "write on the Civil War." Phase one will therefore involve narrowing the topic by such procedures as:

1) Consulting general books
2) Consulting encyclopedias
3) Talking with the teacher
4) Talking with the librarian
5) Scanning newspapers and/or magazines
6) Speaking with local authorities if needed

Phase two will require explaining note taking and bibliographic citation. Note taking is a skill that is little understood by secondary school students. Many students simply fail to comprehend plagiarism. At the same time, they lack the ability to distinguish between the significant and the trivial. Indeed, they often lack both the requisite reading and the requisite writing skills to turn in a well-researched, accurate, and well-written paper. This is why a student caught in the act of plagiarism will painfully lament, "The book said it so much better than I can. I didn't want to change the meaning, so I copied it."[6] Given the situation, the teacher must explain good note taking techniques, emphasizing the ability to scan for significant words or phrases that might alert the student to the importance of a specific passage. The student must learn to take concise notes without becoming cryptic. I'm sure we are all familiar with instances where we found it impossible to interpret a certain line in our own notes. If we have such problems then we should be cognizant of the still greater difficulties faced by our students in gathering information. A few hints on note taking that are helpful are:

1) Use 4 x 6 or larger cards for notes
2) Use 3 x 5 cards for bibliographic citation
3) Number the bibliographic cards
4) Write the same number on all corresponding note cards along with the appropriate page number

5) You may generally omit verbs and adjectives

6) Abbreviate whenever possible

7) You should restrict each card to one topic

8) Write on only one side of the card

9) Enclose direct quotes in quotation marks

Phase three will involve explaining appropriate procedures for outlining and organizing one's topic. Most students write the outline after they have produced their final paper. This is a common procedure even for many college students. However, truly advanced researchers would seldom do this. The best students will organize their thoughts in outline form before producing their final product even when the outline is unwritten. In outlining a student can most clearly manifest his ability to recognize and organize significant points.

Phase four is the stage at which the student produces his final product. This will usually be in the form of a written report. Even when the primary product is to be an experiment or demonstration before a group, the student should be required to produce a written report of his procedure and findings. Even scientists, engineers, and architects produce written explanations of their experiments, proposals, or designs. A report must consist of an introduction, a development of the evidence, and a conclusion. The ability to analyze the topic in a critical manner reveals a mature research capacity. A few hints that may be helpful to the teacher at this stage:

1) Be careful of restrictions as they may be a boon to the lazy and a burden to the creative or energetic
2) Discuss the progress of the report with each student individually
3) Collect notes and outline as well as the final product
4) Save all papers for future illustration and reference

Ideas: Sources of Inexpensive or Free Resources

The teacher, having explained the use of the library and the mechanics of research, is likely to arrive at the inevitable conclusion that the school library resources are just not adequate to meet educational needs. Such is especially likely to be the case in a rural area. The teacher might declare, in the words of a country singer: "I am a man of means by no means...." However, in our information society there are many thousands of useful items available that will not break the school budget or the teacher's pocketbook. There are many free and inexpensive resource materials. Also, individual teacher expenditures on periodicals and books that can be used on the job may be deducted from taxes as a legitimate business expense.

Most teachers overlook the most obvious avenue to the world of free materials: the World Almanac. By consulting that useful compendium one can find addresses for associations, societies, major companies, government

agencies, and city and state Chambers of Commerce or tourist bureaus. One might also find all the accredited ambassadors of foreign nations stationed in Washington, DC. "What good is all this?" one might ask. By writing such groups a teacher can often obtain a number of free publications and lists of others available at modest cost. For the cost of stationary and postage a teacher could acquire:

Britain in Brief - An informative 28-page booklet on British government, history, and culture that is available in bulk to librarians and teachers. The publication is reasonably objective and notes the origin of the problems of Northern Ireland.

China: An Introduction - A colorful 108-page book on Chinese government and life with a number of illustrations. The survey represents the official government view.

India: Festivals and Fairs - A pamphlet describing over 50 festivals and fairs that occur annually in India.

A Car is Born - An 8-page description of the production of an automobile.

Selected Books on Ford - An annotated bibliography of books on Henry Ford, founder of the Ford Motor Company.

Standard Oil Company (New Jersey): A Brief History - A twelve-page history and chronology of the

company that became Exxon.

These are just a few examples. Some countries and businesses will provide bulk mailings to teachers free of charge. Others will provide such information as is requested for a modest fee. Of course, one must be wary of propaganda. Nonetheless, a teacher may often obtain some wonderful materials for exhibit as well as for classroom use.

The United States government is the world's largest publisher. It produces documents on every conceivable subject. Everyone has seen the television ads for the Consumer Information Catalog. Teachers and librarians may obtain mailings of twenty-five by simply writing the Pueblo, Colorado office. This short catalog contains a listing of free or inexpensive materials on such topics as careers, food, financial planning, children, housing, travel, gardening, small business, and hobbies. As was noted above government agencies are listed in the World Almanac, but the best agency for obtaining information on the numerous publications available is the office of the Superintendent of Documents. All depository items that are for sale to the public may be obtained through that office. Because the U.S. government is not a commercial concern the prices for documents are generally below comparable privately printed materials.

The Educational Resources Information Center (ERIC) is a nationwide information network connected with the federal

government. It provides microfiche or hard copies of a variety of unpublished reports, papers, and studies on education conducted throughout the United States. Many of these items may be purchased. They cover all aspects of education, including classroom/library skills and and concepts.

In addition to governmental bodies, discount booksellers often offer great bargains on books, records, or tapes that have educational merit. The two major discount booksellers are Barnes & Noble, which calls itself "the world's largest bookstore," and Publishers' Central Bureau. Discounts that may be obtained through purchases from these two outlets often go as high as eighty percent. Two recent notable examples from Barnes & Noble are Webster's New Universal Unabridged Dictionary with nineteen supplements that sales for $19.95 and the twenty-four volume Illustrated Encyclopedia of Twentieth Century Weapons and Warfare that sales for $29.95. When one considers that the average cost for a single hard-bound book is now $29.00 the advantages of utilizing discount publishers are readily apparent.[7] Teachers should attempt to get on the mailing lists for discount book catalogs.

At one time the Chapel Hill, North Carolina, Public Library put an ad in a local newspaper announcing "free books." Hundreds of people arrived, some in pickup trucks, to carry away their portion in the big library giveaway. Of course, much to their chagrin, they discovered that the

books were free only for the designated check-out period. Those distraught book lovers did not realize the boon they had by having free access to a public library. In the nineteenth century there was a long struggle over open libraries supported by tax dollars. Today such libraries are taken for granted. The resources of such libraries are available to public school students. The public libraries of Greenbrier County alone house over 64,000 volumes.[8]

In addition to public libraries, college and university libraries are a valuable resource. Even if the class must travel by bus for two hours, a field trip to a college library is well worth the effort. Every year Glenville State College hosts hundreds of public school students researching a variety of topics. Of course, if such a field trip is anticipated the librarian should be notified at least three weeks in advance. Large public school groups require preparation. It is always helpful to send the librarian a list of the topics your class will be working on.

If your class, as a group or individually, cannot visit a public or college library there is another information avenue--interlibrary loan. Most public institutions are fairly liberal in their loan policy to schools. The best approach is for the classroom teacher to borrow items through the school librarian or through a local public library. It must be remembered that most colleges require the use of the ALA interlibrary loan form for transactions

by mail. Never call a library by telephone and ask for "everything on subject x." Requests should be by the normal procedure and for specific items. An extremely useful tool for obtaining loans of non-print materials is the West Virginia Media Catalog. This source notes not only the items available, but any associated charges.

There are a variety of guides to free materials. The major publisher of such guides is Educator's Progress Service of Randolph, Wisconsin, which has guides to audio and video materials, films, filmstrips, guidance materials, health and physical education materials, home economics materials, science materials, social studies materials, and computer materials. Some of the materials listed may be kept permanently while others are merely loan items. Each guide consists of introductory sections, the listing, a title index, a subject index, and source indexes. One typical volume the Educators Guide to Free Guidance Materials lists 2,915 items on such subjects as the Air Force, careers, diseases, folk songs, music, sports, and Yugoslavia. It contains an explanation of appropriate form for letters of request and hints on how to cooperate with sponsors. Another valuable source is Carol Smallwood's Exceptional Free Library Resource Materials which lists 850 free items and contains an appendix for additional sources.

There are a number of periodicals that provide valuable information on free resources such as Freebies Magazine, Instructor and Teacher, and the School Library Journal. The

first is a periodical exclusively devoted to free materials, while Instructor and Teacher has a valuable section entitled "Fabulous Freebies and Other Good Deals," and the School Library Journal has a section (usually in September) on "Paperback Giveaways."

One of the most useful resources available to the public school student is the vertical file. Writing of the vertical file, Shirley Miller states that "the return is enough to make a Wall Street speculator green with envy."[9] Before one starts a vertical file one must consider:

1) Adequate storage space and supplies
2) The purchase of the Vertical File Index
3) The types of materials to be collected
4) The procedure for processing and organizing
5) Weeding

Too often vertical files grow out of control. One should never overlook periodic weeding.

There are some excellent tools for locating vertical file materials. One of these is the Vertical File Index, published by H.W. Wilson, which also uses subject headings that are appropriate for vertical file use. Another tool, of course, is the previously mentioned World Almanac. Finally, the teacher should not overlook one of the most obvious sources. Many students in the process of preparing a report collect valuable material that could be of benefit to others. There should be a partnership whereby a teacher forwards to the librarian any materials collected for proper

disposition. In this way, recurring topics will lead to the development of a substantial vertical file to support student research.

There are sources of materials--especially for reading--that draw upon existing resources at no cost. One method of doing this is by establishing a book exchange shelf located in the library where students may exchange a book they have read but do not care to keep for a different book placed on the exchange shelf by another student. Such a shelf would take little space and would be a self-generating source of popular reading materials for adolescents.

Another idea that promotes reading is what I call the book swap. In this procedure students temporarily exchange personal copies that are to be returned when the reading is completed. This would involve books that the students wish to retain, but are willing to swap for additional reading material.

One of the most overlooked sources of material for research and recreation is the teacher's library. In a teaching career a teacher has often collected books either related to his subject or for recreational reading. These books may be an avenue to learning for the inquisitive adolescent. The two best approaches that permit use of a teacher's library with some security are to use the books in class or the establishment of a library reserve section. In either instance the materials can be monitored.

The yellow pages in the telephone directory are a wealth of information they can guide students to appropriate local resources from bookstores and libraries to the offices of government officials, businessmen, and professionals. Depending upon the nature of the project a student may need to contact a variety of persons. A student researching the causes of cancer may well wish to consult a physician, while one writing a paper on divorce law may wish to question an attorney.

Professionals, local businessmen, and government officials quite often are willing to help students or to visit classes. Their assistance is especially valuable when careers are the topic of conversation. Of course, persons should be notified well in advance about specific informational needs. When an individual is to be interviewed, the interviewer should write out all questions in advance in order to expedite the process. At the same time, persons expert in certain fields will often give handouts to students. These items may be collected and placed in the vertical file.

Hints for the Librarian

The librarian is an educator and should remain ever aware of the teaching role. There are several approaches by which the librarian might promote reading and library usage, as well as demonstrate the significance of library training for the secondary student.

No library program can be complete without adequate pretesting and post-testing to determine the level of library skills and the usefulness of library instruction. A pretest should be given to all students prior to the introductory library orientation to establish the level of current skills and the degree and type of library training necessary. As a rule, the teacher will discover a lack of even elementary library skills. If library training is effective a post-test should reveal considerable improvement. The pretest and post-test should have questions related to:

1) The use of the card catalog
2) The use of Readers' Guide and periodicals
3) The ability to locate materials
4) The use of fundamental reference sources

Such tests also serve as valuable evidence, hopefully, of the usefulness of library instruction.

Displays, be they bulletin boards or in cases, are an effective means of library promotion. The librarian should jot down display ideas as they occur. Whenever possible student assistance and ideas should be used in the creation of displays. Many librarians very wisely maintain a file of book jackets arranged by subject for use in developing appropriate displays. Centering one's exhibits around popular themes, holidays, or new book arrivals is always a good approach. Materials used in one display should be saved for later use in others. For some simple

straight-forward display ideas one might consult Clair H. Wallick's Looking for Ideas?

Book talks are often an effective means of promoting reading. Margaret Edwards in The Fair Garden and the Swarm of Beasts maintains that book talks are given for five reasons:

1) To sell reading for pleasure
2) To develop appreciation of style and character
3) To introduce new ideas and fields of reading
4) To lift the level of reading
5) To humanize books, the library, and the librarian [10]

Book talks may in reality be given effectively by the teacher, the librarian, or an expert in a given area. They should not reveal all about the books being discussed but should only give tantalizing glimpses. This will encourage students to seek and read the books for the full story. Introductory book talks are often general in nature, but book talks can be subject or form centered as need and interest warrant.

A technique often used in public libraries that could be utilized in school libraries is the question contest. Public librarians often collect difficult questions and have a question of the week contest with a prize (free library card, small gift, etc.) for the patron that correctly answers the question and can cite the appropriate source of the answer. In a school library a certificate might be

awarded to the student who correctly answers the week's question. A yearly prize utilizing a small sum of money raised from library club activities might be awarded to the student who correctly answers the most questions. This technique is similar to the rationale behind the Japanese approach in industrial relations. The theory is that awards spur loyalty to the library and promote its use. Questions should be difficult but not impossible and might involve such items as:

What was the name of Robert E. Lee's horse?

What president fathered the most children?

How many points are on a snowflake?

What does "Between Scylla and Charybdis" mean?

If the above questions prove too easy then more difficult queries are in order.

An interesting library instructional approach can be found in an article be Kathryn G. Wilmer in the May 1982 issue of School Library Journal.[11] The students are brought to the library and assigned the task of solving a murder. A worksheet has been designed with eleven blanks to be filled in by students as they search for the solution. Each student is given a set of clues and instructions that must be followed in order to retrieve the answers. The class is then paired off and the pairs must solve the questions in a staggered manner as established by the instructor. Because each answer is independent of the others the blanks do not have to be filled in in any particular order. This

assignment worked very well at the elementary school level and could be modified to meet more advanced secondary school requirements.

A tool with which many are perhaps familiar is the pathfinder. The pathfinder is a one to two page guide to a specific subject or topic of interest. The library pathfinder concept was first developed at the Massachusetts Institute of Technology in 1969. An effort to commercially market pathfinders, however, failed because libraries preferred to generate their own local pathfinder tools.[12]

A school librarian, faced with recurrent searches of a similar nature, may design pathfinders to help students. A typical pathfinder could note such things as appropriate card catalog subject headings, appropriate headings in Readers' Guide, proper vertical file headings, proper reference books and media sources. Also, the Dewey numbers for the subject should be given, as should a few sample sources. There might be such pathfinders as "Locating Information on Poetry and Poets," "Locating Information on Battles and Military Leaders," or "Locating Information on Actors and Actresses." The love of adolescents for biography might make biographical pathfinders on great Americans such as Washington, Jefferson, and Lincoln very useful.

Popular culture, including movies, music, and fashion, has a special impact upon the teenager. This impact is significant and cannot be ignored. Quite often a degree of

gimmickry is needed to prompt library use and reading. The school librarian should try to collect some popular items such as popular music and books that are related to popular films. Hence, a science fiction collection might consist of Star Wars and E.T. as well as Jules Verne's Twenty Thousand Leagues Under the Sea and H.G. Wells's War of the Worlds. Books on Classical music might be be complimented by books on country music and rock music. Some teachers are adept at using popular movies as teaching tools to study theme, character development, and other literary manifestations. Sociology classes are especially good for studies of popular culture itself. The librarian must attempt to relate the library to the actual life experience of the student while guiding that student to an ever higher plane of intellectual development.

One of the best ways to appeal to students is by creation of a popular book section consisting of some best sellers, student suggested books, and books which have high circulation. Such a section should be near the library entrance as a drawing card. Students often come to the library during study hall just to occupy space. They often achieve little and read little. An attractive display connected with the popular book area might draw them to browse, to read, and even to learn something.

Of course, in the end all is naught without teacher-librarian cooperation. Every aspect of library or material resource use must of necessity involve joint

effort. No assignment, no project, no library work should ever be undertaken without joint consultation between the librarian and the classroom teacher. I once knew a teacher who for years insisted on giving his own library instruction to the exclusion of any outside suggestions. His first such effort was a great success, but as time passed his presentations became worse and worse. Too busy to keep abreast of developments his library sessions became sources of subtle misinformation. No teacher intends this. Certainly that was not the design of the teacher in question, but that was the consequences of his failure to cooperate with the librarian. Needless to say, a librarian who fails to keep abreast of developments will suffer a similar fate--the difference being that the librarian must depend upon cooperation to see the fulfillment of the proper library role, while the teacher may think he or she is fulfilling an appropriate role without the library. It is truly ironic that anyone should feel so in our information age.

Practical Application of Resource Materials

One day a frustrated geometry student, having memorized his mathematical theories, inquired of his teacher; "What good is the Pythagorean Theorem?" It is indeed strange in our advanced society that so many should see no value in history, literature, or mathematics. The reason for this is that few are actually presented with concrete or even adequate intellectual evidence of the value of what they

have learned. The answer to the above question might be: "A surveyor cannot function without the Pythagorean Theorem which is the ultimate basis for so many of the math calculations required in that profession." Hence, as in the case of the frustrated geometry student, the average adolescent needs to be made aware of the usefulness of what he has learned. In short, there is a need for some practical application.

There are three great divisions of knowledge: the humanities, the social sciences, and the sciences. Of these the humanities is perhaps the oldest, born when the first man spoke his first word, painted his first cave, or sang his first guttural song. Language, art, and music are the major components of the humanities.

English is the major secondary school humanities course. Students in English are often required to do a research paper. Such a paper is not always restricted to literature. Some humanities research topics that might be appropriate for the English research paper are listed below. Most of these topics would be too broad for college work, but given the limited resources and the often limited knowledge of secondary students they could be excellent topics. However, the especially ambitious and capable student should not be restricted if he or she wishes to write on "The Gothic Elements in 'The Fall of the House of Usher.'" The less specialized enthusiasts might productively research such topics as:

"The Evolution of Science Fiction"

"The Romance Novel"

"Modern Art and Artists"

"The Influence of (Author) on Literature"

"Rock Music--Its Origins and Impact"

"Modern Movies--A History"

"Mythology in Literature"

"The Bible in Literature"

"Sports in Literature"

"War in Literature"

In addition to papers, the staging of literary or artistic performances has long been a part of humanities teaching. Plays are always a good idea, be they standard classics or student-teacher developed productions. Producing a good authentic performance requires study, reading, and work. In fact, having a class turn a short story or novel into a play is an excellent exercise in creativity. You might have the class read and discuss a number of examples of plays before you commence this exercise.

A most interesting idea put forward by Anthony P. Colasurdo in the English Journal is the use of a literary magazine as a class project.[13] Colasurdo did this in an elective mass media class though it could easily be done in an English class. The project involved the use of techniques learned in class. There were four committees established: the editorial committee, the art committee,

the typing committee, and the sales and advertising committee. Anyone in the school could submit material for inclusion though only the best items would be selected. Colasurdo had several suggestions for those wishing to start such a project:

1) Use numbered copies of submission that do not have the name of the authors. This results in more objective judging by students.
2) Choose enthusiastic committee chairs
3) Have students grade each other in private and use this to help determine final scores.
4) Allow four weeks for the project which will involve editing, proofreading, rewriting, critical reading, identifying theme, discussion, etc.
5) The teacher may suggest and persuade, but should avoid outright rejections of the recommendations for publication from the student editors.
6) Have typists do more than just type.

In addition to the above, reading and research should be assigned related to literary publishing, mass media, magazines, and other items. As a writing assignment each student should analyze a favorite magazine, examining content, audience, advertisements, and other aspects of the publication. They could also, according to Colasurdo,

research Writer's Market or other reference works. The result is a worthwhile learning experience.

The story paper can be another effective educational technique for the English teacher or the Social Studies teacher. It is described by George W. Chilcoat in the March/April 1985 issue of The Social Studies.[14] The example provided by Chilcoat involves the use of a story on an American woman in the nineteenth century, but other themes could be used. Such an effort would involve characterization, plot, and the format of nineteenth century popular story papers. The format is very similar to a newspaper format except the contents is a fictional account of events. Students also can illustrate their story papers. This type of project is an effective learning experience. Students should do research on their potential topic before producing the fictional account. The teacher should have a variety of potential topics for stories.

The idea of creating one's own illustrations for a novel that is being read as a class assignment has the grounds that it reveals an ability to translate written words into a graphic representation. Artistically talented students will especially excel at this type of activity. The less artistically inclined may in fact collect representations from popular periodicals that in some way ...ind them of the work. In other words, the talented might ... scenes from William Shakespeare's Romeo and Juliet or ...arles Dickens's Oliver Twist, while others collect cut

outs from periodicals or other sources that are representative of the theme of the play. The items collected might be used in a bulletin board display.

The comic book edition of a work of fiction or nonfiction is something most teachers should be familiar with. "Classic Comics" are the prime example of this educational approach. The traditional classic comic would take some written work, usually from literature, and put it into a comic book format. There was a time when many children gained their earliest awareness of The Iliad or The Odyssey from such comic book productions. Ruth Cline and William McBride put forward a number of potential educational uses for comics in A Guide to Literature for Young Adults.[15] Some of these uses are:

1) Teaching Vocabulary
2) Teaching Sequence
3) Teaching Dialogue
4) Creative Writing or Drawing
5) Studying Stereotyping
6) The Study of Myth

The comic book, however, may also be used as a creative exercise. Students may convert plays or novels into comic editions. Such an effort would require both writing and artistic skills.

Too often English teachers restrict themselves to the classics and fail to appreciate the value of popular literature as an educational tool. Science fiction and

popular romance fiction can often arouse the interest of adolescent readers where Ralph Waldo Emerson fails. Certainly, Dickens, Shakespeare, and similar literary giants should be taught in the high schools, but a segment on popular mass literature should also be introduced. The reason this should be done is simple: Mass market fiction is the type of fiction that most young people can identify with and can most readily learn from. This is not to say that they cannot learn from the classics, but that process is more difficult. The teacher should seek out the best popular literature, keeping in mind the insight of John Rouse: "Good trash is a difficult thing to find. But not quite as difficult to find as a good classic."[16] Devoting some class time to authors students actually read is one of the surest ways of getting student interest. In fact, papers requiring a comparison of a work of popular literature to a classic is always a good exercise. However, the teacher should not be harsh because a student rates Agatha Christie more highly than William Faulkner. If an adolescent had a mature literary judgment he would intellectually be an adult and not an adolescent.

The panel discussion is generally a good way of getting students to research and then present their ideas. Good's Dictionary of Education defines a panel as "a group of three to six persons having a purposeful conversation on an assigned topic with or without active participation by the audience."[17] Panel discussions are not to be confused with

debates. Their format should be somewhat like the popular PBS news program "Washington Week in Review." Almost any topic can be suitable for a panel discussion, but topics that have a current popularity are best with adolescents. Humanities related topics that adolescents might find interesting for a panel discussion might include such things as discussions of the works of particular writers, musicians, or artists. "Socialist Realism in Art" would be an interesting topic for a discussion given adequate resources. Most students would probably find that type of art meaningful on the surface without fully realizing the implications of such formularized artistic expression. Whatever the topic the teacher must make sure it is researched by each panel participant before the discussion. Students should be required to take notes from relevant sources and use them during the discussion. The notes should be turned in after the presentation.

In terms of piquing student interest, debates are always a good traditional method. The teacher should act as moderator to see that things do not get out of hand. This can happen when you have two capable and committed students debating an issue, or when you have students that are quick to anger. For the purposes of debate some issue or question should be stated in dramatic affirmative form. Some good examples are: "Resolved, that modern art is a sign of the decay of modern society," "Resolved, that Edgar Allan Poe was not a good writer," or "Resolved, that rock music is

inferior to classical music." These types of statements force students to think about their position and, more importantly, force them to seek evidence to support their position. They will be forced into the library to find such evidence.

Many of the approaches discussed above are also relevant in the social sciences. Unlike the humanities, which tend to deal with human creativity and spiritual qualities, the social sciences are inclined to the social study of man and society. The use of current events and the study of biography are most effectively used in the social science disciplines.

The research paper in the social sciences might consist of such topics as:

"The Life of Abraham Lincoln"

"The Causes of World War I"

"Alcoholism in American Society"

"Drug Abuse Among Teenagers"

"Suicide Among Teenagers"

"Life in Colonial Times"

"The 1984 Elections"

A meaningful approach to research papers in the social sciences is the eternal "What If?" Students are assigned a topic to research and are asked: "What if the reverse had been the case, or what if certain things were true?" Some examples that cause students to think might be:

"What If Lee Had Won at Gettysburg?"

"What If Hitler Had Never Lived?"

"What If You Knew Someone Who Was a Spy?"

"What If You Were Deaf or Blind?"

It is easy to see how such topics could be connected with a study of the Civil War, World War II, the Walker spy case, or Helen Keller.

Another useful educational activity for persons in classes in history or government is the mock trial. Utilizing students from the class the teacher can establish attorneys, the jury, and the witnesses. I knew a teacher once who did this and started to name a defendant to play the role of an actual murderer, but she relented because she thought the class jury would convict just as a joke without regard to the evidence. A mock trial requires a great deal of research into the legal system as well as research into the specifics of the case. Historical trials that are still hotly debated such as the Sacco-Vanzetti Case or the Rosenberg Case make excellent mock trials. In fact, the verdict of the students may differ from that in the original case. Of course, the most effective mock trials are those involving some current headline case such as that of Claus Von Bulow. Because students have heard of the case they should show particular interest. A popular state case might also be good for an effective mock trial.

As was pointed out above current events are quite often a part of social studies. Having the class read the paper daily and present interesting findings in class is a way to

get them to read and appreciate what is happening in the world. An additional utilization of newspapers might be the creation of newspaper front pages as a class project. For example, a history professor might assign each student in class a different date in World War I and have each student create a front page for the events of that date. The creative student will examine newspapers for the appropriate format and will research the developments on the date in question. The end product will vary with the abilities of the students, but all can benefit from such an exercise.

Historical reenactments are a popular way to get across points to a class. Students can be assigned to recreate certain historical events in dramatic form. They should research the topics and produce a script in cooperation with the teacher. Once completed, they can perform their reenactment for the class. This amounts to the creation of a brief play of the type described by Ralph J. Papaleo in the January/February 1985 issue of The Social Studies.[18] Papaleo wrote a play entitled "The Tragedy of Woodrow Wilson" for presentation in his high school classes. He coupled his play with a library research assignment on Woodrow Wilson and the League of Nations. The actors had to research their characters and act as a panel for purposes of class discussion after the performance. The class discussed such issues as whether Wilson should have gone to Paris and whether the Versailles Peace Treaty was fair. Such an approach could be adopted to almost any historical event to

induce learning of a subject that might otherwise seem remote to the adolescent.

Simulation games that are designed to create an environment in which interaction along certain lines occurs are a useful teaching tool. The popular game "Diplomacy" is an example of such a simulation. It is designed to recreate in a limited way conditions prior to World War I. Students, in addition to obtaining insights into history, generally learn to have greater understanding for the complexities of a situation. Of course, such a game should always be preceded with study of the events. A simulation should not be confused with the type of role playing that characterizes an historical reenactment like that described earlier.

The combination of artistic endeavor with the social sciences is quite common. I once knew a history teacher who had a student that he considered quite "dumb" and beyond hope. One day he noticed the student drawing and walked over to see what was up. The student in question was sketching a likeness of Douglas MacArthur. From that point on he utilized the student in doing bulletin boards and other activities. He found that by using him in this capacity the student actually did better in history. Hence, having students actually sketch scenes of things that they are studying is useful in making events and people seem real and concrete. A teacher should use students to do any class displays or bulletin boards. The teacher could have groups work on different boards to be judged by a panel of

teachers. Recognition in the form of a small party could be given to the winning team. Positive reinforcement works better than punishment.

In classes in sociology and economics creating life situations is often a good educational technique. Creating artificial marriages and families is a good means of getting students to recognize the problems and challenges of family life. To effectively perform as a family a couple in class would have to do research on budgeting, educational expenses, hospital costs, etc. The students could be given different theoretical occupations with certain incomes in order to learn how to deal with a real life situation. The teacher might establish hypothetical problems the family would face and ask the couple to solve it. Such a good learning exercise that will require some research.

Panel discussions and debates are, as in the case of the humanities, excellent for prompting research. Many of the procedures noted earlier could be followed. Interesting panel discussions could be organized around current events like "Hijacking and Terrorism" or "The Effectiveness of the United Nations"; historical events and issues such as "The Monroe Doctrine" or "The Cuban Missile Crisis"; and social and moral issues such as "The Death Penalty" or "Abortion." The latter two issues stated in the affirmative also make excellent debating topics. Hence, a debate might surround the statement "Resolved, that capital punishment is 'cruel and unusual' and unconstitutional." It is very important

that the teacher avoid prejudicing the outcome in such debates by taking sides. Students must be required to study the issues and come to their own conclusions.

The sciences are the third great area of knowledge and the one most intimately associated with our technological age. Paula C Mayhew, a high school science teacher, wrote in the April 1976 issue of The Science Teacher: "As a teacher, I have been disturbed that students seem to find science so routine and humdrum."[19] Most students, given the propensities of our times, think that science and fact are the same thing. They do not recognize the abstract and theoretical aspects of many scientific disciplines. For example, most students do not recognize that the atomic structure that consists of protons, neutrons, and electrons is an abstract construct used to describe observable phenomena. They think all matter consists of tiny solar systems with the electrons circling like satellites. They do not understand that what is believed to be scientifically established at one time may be proven incorrect at another time. This is why science is less interesting to many students than are the humanities and the social sciences. At the same time the inability of students to think logically causes them problems in such diverse courses as physics, mathematics, and biology.

Given the false perception on the part of many secondary students that science is not connected with human beings, it is wise to assign some topics of research that

are humanity oriented. Research papers of the following nature would definitely be in order:

"The Impact of Pollution Upon Man"

"Chemical Plant Disasters"

"Is Nuclear Power Safe?"

"Computers in Modern Society"

"Space Exploration"

"Pesticides and the Environment"

"Star Wars: Will SDI Work?"

Because it is often so difficult for adolescents to make the human connection in science, papers on great scientists can be most useful. Some good choices are: Charles Darwin, Albert Einstein, Marie S. Curie, Alexander Graham Bell, and Isaac Newton. Posting a list of outstanding scientists and their birthdays on a classroom bulletin board can be a subtle way of getting students to see the connection between science and human beings.

A traditional approach to promoting scientific study by students is the use of science fairs or chemical magic shows. Science fairs require a great deal of work. Students must state a hypothesis and carry out an experiment that proves or disproves the stated hypothesis. Though there may be a demonstration involved in a science fair project, a demonstration is only an end product of experimentation, sampling, and research. The best source for ideas on science fair projects is the Science Fair Project Index. The periodical, The Science Teacher, is also

an excellent source. It has section entitled "Idea Bank" that is a wealth of practical information. Also, many of the articles discuss in detail various practical activities of classroom teachers.

Certain factors must be considered before starting science fair projects. Among these cost and safety are the most important aspects. Many science fair projects can be carried out at little cost using common household items. Consult the book Science on a Shoestring for some examples. At the same time, certain companies and organizations provide free information that can help with science projects. The Kodak Company will provide upon request a free brochure on "How to Make and Use a Pinhole Camera." Also, students should be discouraged from doing experiments which involve dangerous chemicals or high electrical charges. In fact, the famous Ben Franklin experiment on electricity utilizing a kite and a key could have been old Ben's last effort.

Some award winning science fair projects that might be tried are listed in the book Nuts and Bolts:

The Effect of Nu-Earth on Plants

The Effects of Temperature

Soil Modifications by Earthworms

Behavior of Crickets in an Enclosed Environment

Social Behavior in Ant Colonies

Soil Preferences of Several Plant Species

Airspace as an Insulator

Airplane Wing Designs and Lift

Regeneration of Planaria[20]

A good scientific interest rouser is the chemical magic show. One high school chemistry teacher utilized an August 1975 article in the Journal of Chemical Education and Leonard A. Ford's book Chemical Magic to develop ideas for such a show. A pyrotechnics display was put on. Dry ice added to colored water set the atmosphere with an assist from a skull borrowed from a biology lab.[21]

Combining artistic effort with the subject works as well in science as in any discipline. Students should be required to keep folders containing their own illustrations of such things as the internal structure of insects and humans in biology and the stratification of the earth in geology. They could use illustrations in texts and library books to go by. This exercise is useful because it helps them to better remember the structure of life forms and natural objects. Also, the concrete process of illustration arouses more interest in the subject under study.

Isaac Asimov wrote in Where Do We Go From Here: "I have long maintained that science fiction has potential as an inspiring and useful teaching device." Taking a cue from Asimov, Paula C. Mayhew developed a mini-course on "Science in Science Fiction." She used portions of the mini-course in her science classes. Some of the materials she used included:

Twenty Thousand Leagues Under the Sea by Jules Verne

"The Martian Way" by Isaac Asimov

"Arena" by Frederic Brown

"A Martian Odyssey" by Stanley Weinbaum

"Surface Tension" by James Blish

The White Mountains, The City of Gold and Lead, and The Pool of Fire by John Christopher

Sands of Mars by Arthur Clarke

The Red Planet by Robert Heinlein

"History Lesson" by Arthur Clarke

Time of the Great Freeze by Robert Silverberg

Mayhew also had her students write speculatively about another ice age. She believed the Brown and Weinbaum stories were especially good at demonstrating problem solving, data gathering, testing, and recognition of assumptions.[22]

Every individual, not just the science teacher, is aware of the tremendous revolution the computer has produced in our lives. Bank statements, accounts, and even check-out counters at supermarkets have been automated. There is some truth to the assertion that one no longer gets letters from people as often as one gets letters from machines. Schools are gradually entering the computer age by purchasing microcomputers which have a variety of classroom applications, from computer assisted instruction to word processing, programming, and record management. Of course, computers require software--internally developed or externally purchased. Films for the Humanities (P.O. Box

2053, Princeton, NJ 08540) has produced a "Library Skills" package for the Apple II+, IIe, and IIc. At a cost of $99.95, it instructs students on the use of the card catalog, the book stacks, a periodical index, an encyclopedia, and non-print materials. This program actually simulates a manual search with displays of tables of contents and bibliographies.

In addition to the above general example, there are numerous pieces of subject specific software available. Such items are reviewed in the School Library Journal, Booklist, and numerous other periodicals. If a teacher gets some programming experience, he or she may well be able to develop online programs specific to the school involved. Apples development of the Macintosh has made microcomputer usage extremely simple. More and more educational programs are being developed for that specific machine. A course in basic or the use of dBase III or some similar programming software is worth the effort.

Computers involve traditional use of logic and mathematical skills. Brain teasers in math and logic are therefore useful in developing abilities that will translate to effective computer usage in later life. Librarians and science teachers can promote the development of such skills by means of assignments that require the use inductive and deductive problem solving. Puzzles of various kinds are the most effective means of developing such skills. The library may establish an area with puzzle books and brain teasing

question books. Students might also be given assignments by the teacher that require the use of logical or math skills. These projects are often along the line of the question of how a man with a boat might get a duck, a bag of corn, and a hungry dog across a river one at a time without the duck eating the corn or the dog eating the duck.

Library assignments that use reasoning skills might involve a series of clues that lead to a particular book that in turn leads to another and another until the solution is found. A teacher in the sciences should be able to come up with questions that are subject specific and will require the skills noted.

Panel discussions and debates can serve the science teacher as well as the humanities or social studies teacher. Panel discussions might logically involve some of the great scientific developments of the ages. Some examples might be:

The Evolution of Species

The Utilization of Atomic Power

The Invention of the Steam Engine

The Copernican Concept of the Universe

The Discoveries of Newton

The Discoveries of Einstein

The Development of Space Exploration

There are so many scientific topics that are amenable to debate that one hardly knows where to begin. Don Woodman, a high school biology teacher, used the book The

Biological Time Bomb by Gordon Rattray Taylor in his classes with excellent results. The chapter entitled "Is Sex Necessary?" stirred up a class controversy that lasted two weeks. The class considered the implications of such things as test tube babies, birth control, and artificial insemination.[23] Of course, in any such discussion the local intellectual and social climate must be considered. Some other good topics for debate might be: "Resolved, Creation is superior to evolution" or "Resolved, the space program is a waste of money." Such topics can become very heated because there are moral sides to many scientific issues.

In the final analysis, a teacher or librarian must search out sources of ideas as well as use a little personal creativity. This is true of projects and reports in all subject disciplines. Sometimes students will come up with clever and creative ideas of their own. Such a development should always be encouraged.

Conclusions

We all know how certain students often end up doing a great deal of work on class projects and others do little or nothing. The student that takes the easy course in school will gain some temporary adolescent advantage that will exact a price at a later date. Almost without exception, a teacher can pick out of her class the students that will lead successful lives and those that will fail in their most cherished goals. This is because the school is a reflection of society and the qualities that spell success there are

many of the same qualities that spell success in life. In our rapidly changing information society those qualities are those of the information expert. That is why the need for general library orientation is so essential. If a student is to succeed in college, in business, or in any other arena he must possess information skills. However, a student must be required to use those skills in a practical way. Assignments and class projects must be viewed not only as something done in school, but as preparation for a career and for life.

Many teachers lament that they must stoop to the level of hams to arouse student interest. They regret the entertainment saturated environment that the adolescent lives in. While it is true that entertainment is seldom educational, it would be foolish to ignore the potential it has in the proper educational environment. Creative teachers can make educational experiences out of movies and television. When a program is airing that is relevant to a teacher's subject watching it might be made a class assignment. Occasionally, PBS or commercial stations will provide study guides to particular programs. Also, publishers will often provide study guides for popular fiction. The teacher should use such material to advantage. Sometimes a teacher must ham it up a little to keep the classes attention. From experience, I know that students have their fondest memories of teachers who can be both entertaining and educational.

The smart teacher does not worry about what he or she might fail to know when a student asks a question. The best response is: "I don't know that, Jimmy. Why don't you look it up and tell the class about it at the next meeting." Most students react positively to this approach. A smart teacher should try to avoid using assignments as punishment. Such an approach amounts to negative reinforcement. The smart teacher is enthusiastic for his or her subject. The smart teacher is interested in his or her students. There are times when a teacher is depressed and wonders if all hope of educating is lost. However, if just one student is a better person and a better citizen because of you then your teaching career has not been in vain. Most teachers never know how much of an inspiration they have been. That is the reason that I have always made it my policy to tell my teachers what they have done for me.

Let me close with a few observations on what I call the "subliterate." The illiterate cannot read at all. To them all road signs are as Greek or, as my father says, "Just chicken scratch." The illiterate is in a dark world but does not know just how dark it is. The even more tragic group are the subliterate. The subliterate person may have graduated from high school; but, he either failed to obtain all the essential reading skills or lost them due to a profound lack of interest in reading of any kind. Literacy is a skill that must be used. It is not like riding a bicycle. One can truly forget how to read if the ability is

not exercised properly. Imagine what it would be like if the newspaper were just so much "chicken scratch." A subliterate person may not even be able to take the written examination for a driver's license. Such an occurence is a profound tragedy. Social promotion is a terrible thing.

So, you can see, how very important your functions as a teacher are to your students. Do not let them graduate without having learned to read and write and use the fundamental resources of our wonderful information society.

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[20] Van Deman and McDonald, Nuts & Bolts, p. 47.

[21] George R. Hague, Jr., "In Chemistry--You've Got to Have a Gimmick," The Science Teacher (February 1976), 43:34.

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PARTICIPANT SURVEY

1) List the three primary aspects of the library's educational role.

2) Note three things training in library skills prepare an individual for:

3) What is the difference between library orientation and library instruction?

4) What book is not only an essential library reference tool, but gives address information on numerous organizations that can provide free resource materials?

5) Give three items that should be on a general library worksheet.

6) What would be the practical value of giving a pretest on library use to a class?

7) The "world's largest bookstore" is _____

8) What is a book talk?

9) What is a story paper?

10) Give an example of how comics might be used educationally.

11) How might science fiction be used in a science class?

12) How might worksheets or "treasure hunts" be used by you?

13) What ideas obtained in this presentation might be adapted to the needs of your students?

14) What aspects of the presentation did you like best?

15) What aspects of the presentation did you like least?

16) Would you recommend this presentation to others? _____

17) Note below any suggestions you have on how to improve this presentation.

WHO TO CONTACT AND HOW FOR INFORMATION AND MATERALS

Associations, Societies, Government Agencies, Companies, Cities, States --

Addresses are given in the World Almanac. For companies you should write the public relations officer. For cities and states either the Chamber of Commerce or the Tourist Bureau.

Countries --

Foreign embassies will often provide information. Ambassadors are listed in the World Almanac. All embassies are in Washington D.C. Some of the more notable are Great Britain, France, India, Japan, the People's Republic of China (zip 20008), and the Union of Soviet Socialist Republics (zip 20036). Address Correspondence as follows:

(Name of Ambassador)
Embassy of (Country)
Washington, D.C. (zip code)

Discount Booksellers --

With the cost of an average book at over $29.00, one can often obtain books, cassettes, and records at up to 80% discount from discount booksellers. A Teacher should get on the mailing lists of such dealers. For example, Barnes and Noble sales The Illustrated Encyclopedia of Twentieth Century Weapons and Warfare (24 vols.) for $29.95 and Webster's New Universal Unabridged Dictionary with 19 supplements for $19.95. The two major discount book sellers are:

Barnes and Noble Bookstores
126 Fifth Avenue
New York, NY 10011

Publishers Central Bureau
1 Champion Avenue
Department 093
Avenel, NJ 07131

ERIC Documents --

A large collection of useful educational materials are available through the Educational Resources

Information Center. Most Documents may be purchased in paper copy at a modest price. Contact:

ERIC Documents Reproduction Service
3900 Wheeler Avenue
Alexandria, VA 22304

Free Filmstrips --

Get on the mailing list for complementary sound filmstrips. Write:

Chevron School Broadcast
595 Market Street
San Francisco, CA 94105

Government Publications (Consumer Information Center) --

To get a list of free and inexpensive publications write:

Consumer Information Service (T)
P.O. Box 100
Pueblo, Colorado 81002

Government Publications (Superintendent of Documents) --

A variety of resources are available at modest cost. For information contact:

The Superintendent of Documents
Government Printing Office
Washington, D.C. 20402

Libraries (Greenbrier County Public) --

Public Libraries are a valuable resource that are available to public school students. The Greenbrier County Public Libraries have 64,025 volumes. The Information below comes from the West Virginia Library Commission's 1984 Statistical Report.

Address	Volumes
Alderson Public Library P.O. Box 289 Alderson, WV 24910 Phone 445-7221	5,674
Greenbrier Public Library 301 Courtney Drive Lewisburg, WV 24901 Phone 645-2350	16,463

Rainelle Public Library 18,030
3125 Seventh Street
Rainelle, WV 25962
Phone 438-5335

Quinwood Public Library
(Branch of Rainelle Public Library)
P.O. Box 157
Quinwood, WV 25981
Phone 438-6741

Ronceverte Public Library 5,379
115 Edgar Avenue
Ronceverte, WV 24970
Phone 645-7911

Rupert Public Library 8,426
Rupert, WV 25984
Phone 392-5991

White Sulphur Springs Public Library 10,053
203 West Main Street
White Sulphur Springs, WV 24986
Phone 536-1171

Publishers of Library Instructional Materials --

Addresses:

American Library Association
50 East Huron Street
Chicago, IL 60611

Educational Enrichment Materials
Catalog Department, FG
357 Adams Street
Bedford Hills, NY 10507

Libraries Unlimited, Inc.
School Department
P.O. Box 263
Littleton, CO 80160

Media Materials, Inc.
2936 Remington Avenue
Baltimore, MD 21211

H.W. Wilson Company
950 University
Bronx, NY 10452

GUIDES TO FREE AND INEXPENSIVE MATERIALS

Consumer Information Catalog, (Washington, DC: U. S. Government Printing Office, Summer 1985)

Educators Grade Guide to Free Teaching Aids, 30th ed. (Randolph, WI: Educators Progress Service, 1984).

Educators Guide to Free Audio and Video Materials, 31st ed. (Randolph, WI: Educators Progress Service, 1984).

Educators Guide to Free Films, 44th ed. (Randolph, WI: Educators Progress Service, 1984).

Educators Guide to Free Filmstrips, 36th ed. (Randolph, WI: Educators Progress Service, 1984).

Educators Guide to Free Guidance Materials, 23rd ed. (Randolph, WI: Educators Progress Service, 1984).

Educators Guide to Free Health, Physical Education and Recreation Materials, 17th ed. (Randolph, WI: Educators Progress Service, 1984).

Educators Guide to Free Home Economics Materials, 2nd ed. (Randolph, WI: Educators Progress Service, 1985).

Educators Guide to Free Science Materials, 25th ed. (Randolph, WI: Educators Progress Service, 1984).

Educators Index of Free Materials, 93rd ed. (Randolph, WI: Educators Progress Service, 1984).

Free Software for the IBM PC (NY: Warner Books, 1984).

Free Software for Your Apple (San Jose, CA: Enrich, 1984).

Free Stuff for Kids, 8th revised edition (Deephaven, MN: Meadowbrook Press, 1984).

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Selected Periodicals:

Instructor and Teacher

The Instructor Publications Inc.
545 Fifth Avenue
New York, NY 10017
(10 per yr/$20)

Freebies Magazine

P. O Box 2083-T
Santa Barbara, CA 93120
(6 per yr/$6.97)

School Library Journal

R. R. Bowker
Subscription Dept.
P. O. Box 1426
Riverton, NJ 08077
(10 per yr/$47)

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Three Very Good Periodicals:

English Journal

National Council of Teachers of English
1111 Kenyon Road
Urbana, IL 61801
(12 per year/ $30)

The Science Teacher

National Science Teachers Association
1742 Connecticut Ave., NW
Washington, DC 20009
(12 per year/ $25)

The Social Studies

Heldref Publications
4000 Albemarle Street, NW
Washington, DC 20016
(6 per year/ $25)

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World Book Encyclopedia (Chicago: World Book Inc., Annual).

World Book Dictionary, 2 volumes (Chicago: World Book Inc., Annual).

Selected General Periodicals From Readers' Guide:

American History History Illustrated
Better Homes & Gardens
National Geographic
Newsweek
People Weekly
Popular Mechanics
Science
Time
U.S. News and World Report